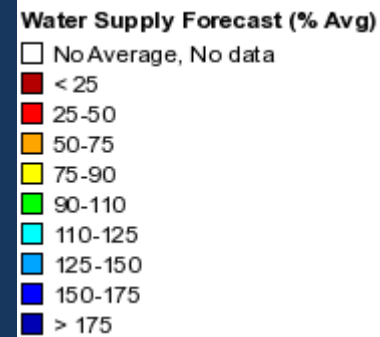
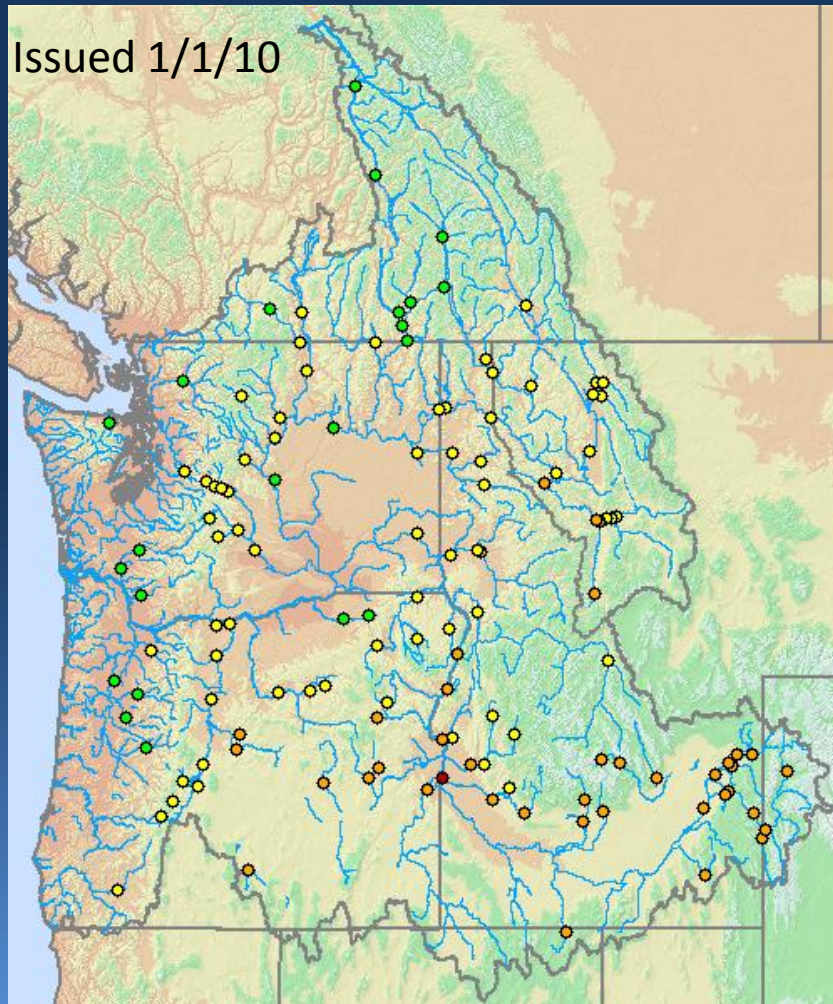


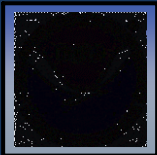
Northwest River Forecast Center Water Supply Briefing



Jan 1st “Final” Forecast

Legacy Regression Model

Agency Coordinated



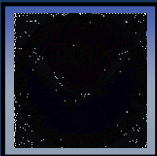
Observed Conditions



Runoff

Precipitation

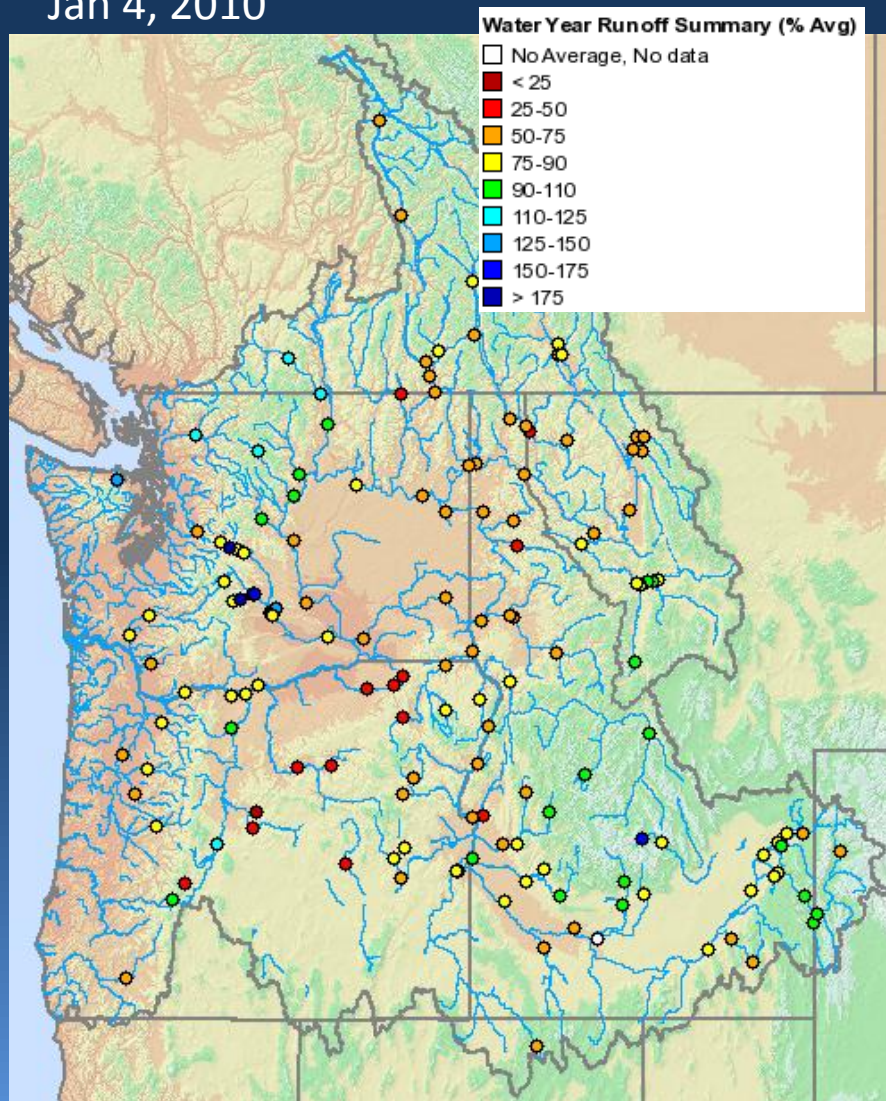
Snowpack

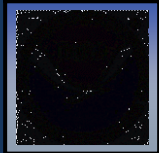


Current Runoff Conditions



Jan 4, 2010

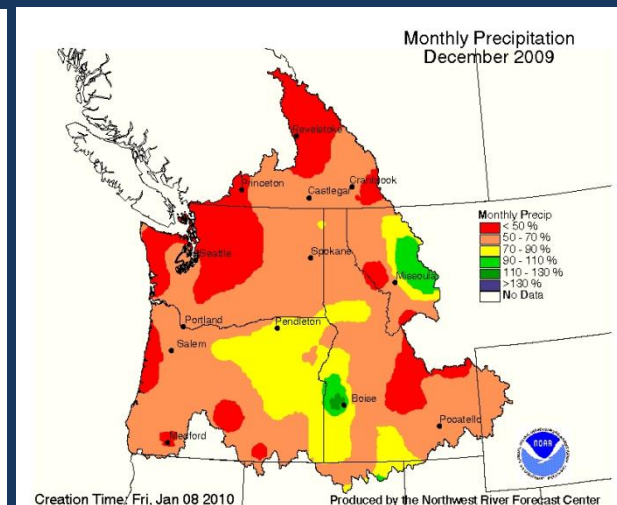
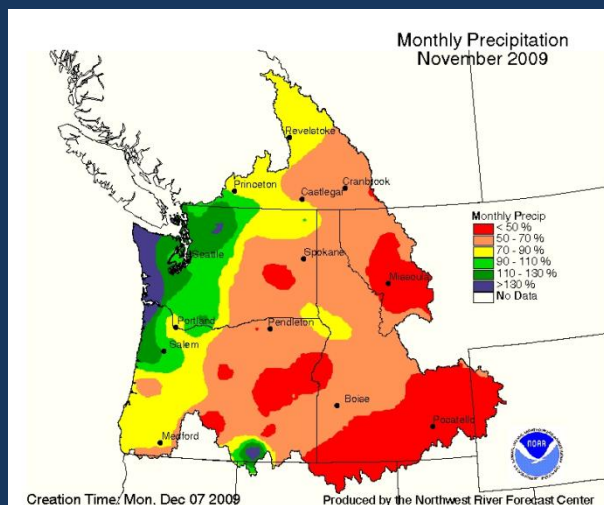
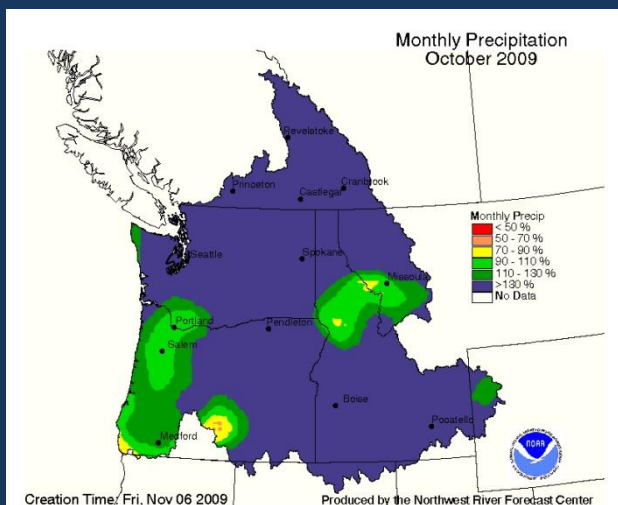




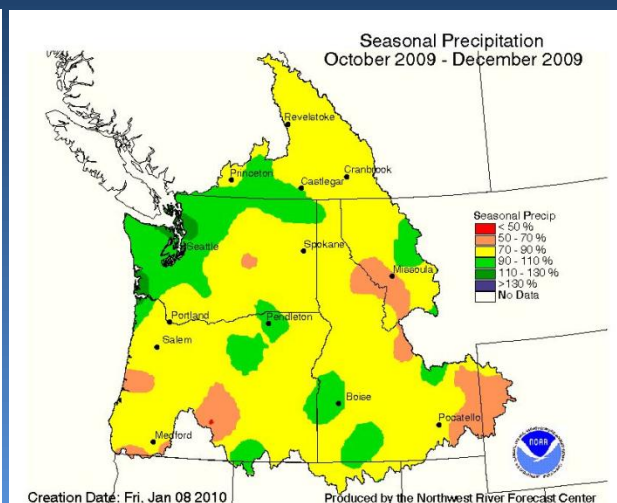
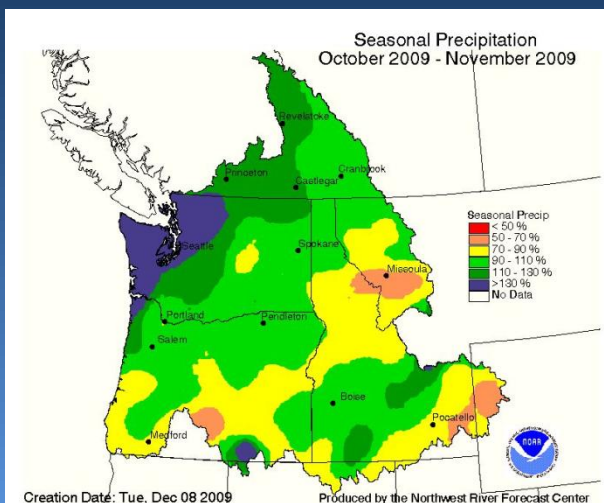
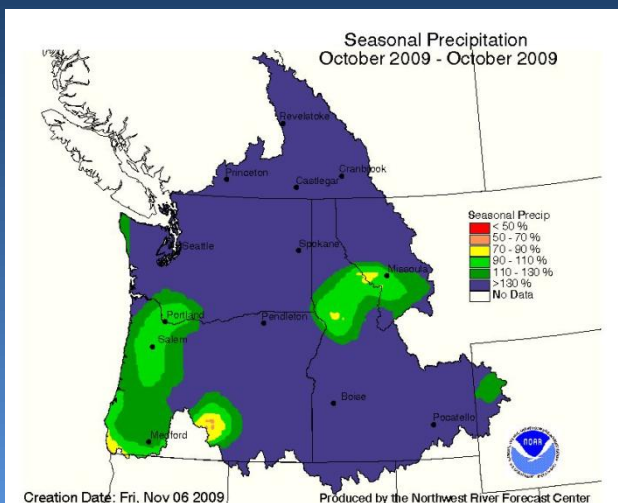
Observed Precipitation



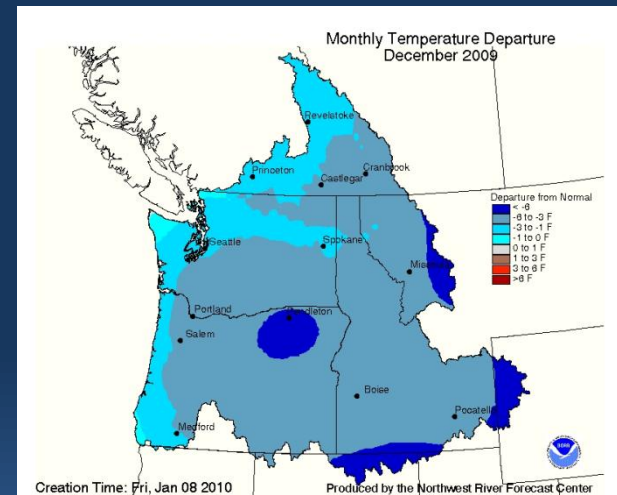
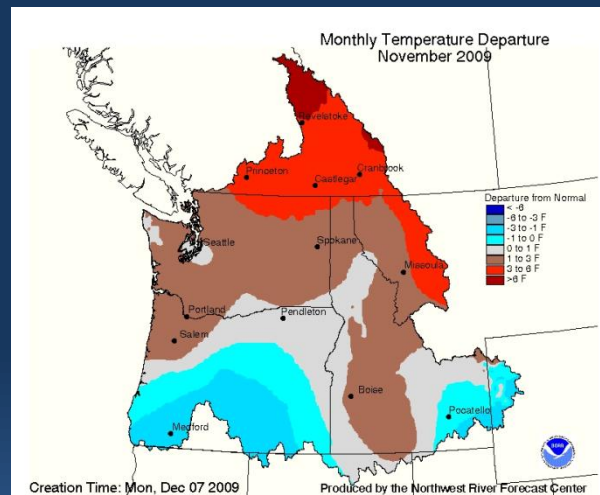
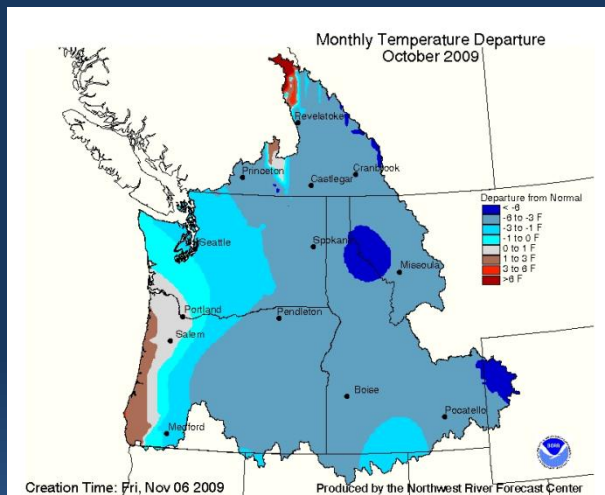
By Month (Oct, Nov, Dec)

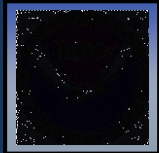


Seasonal (Trend)



Observed Monthly Temperature

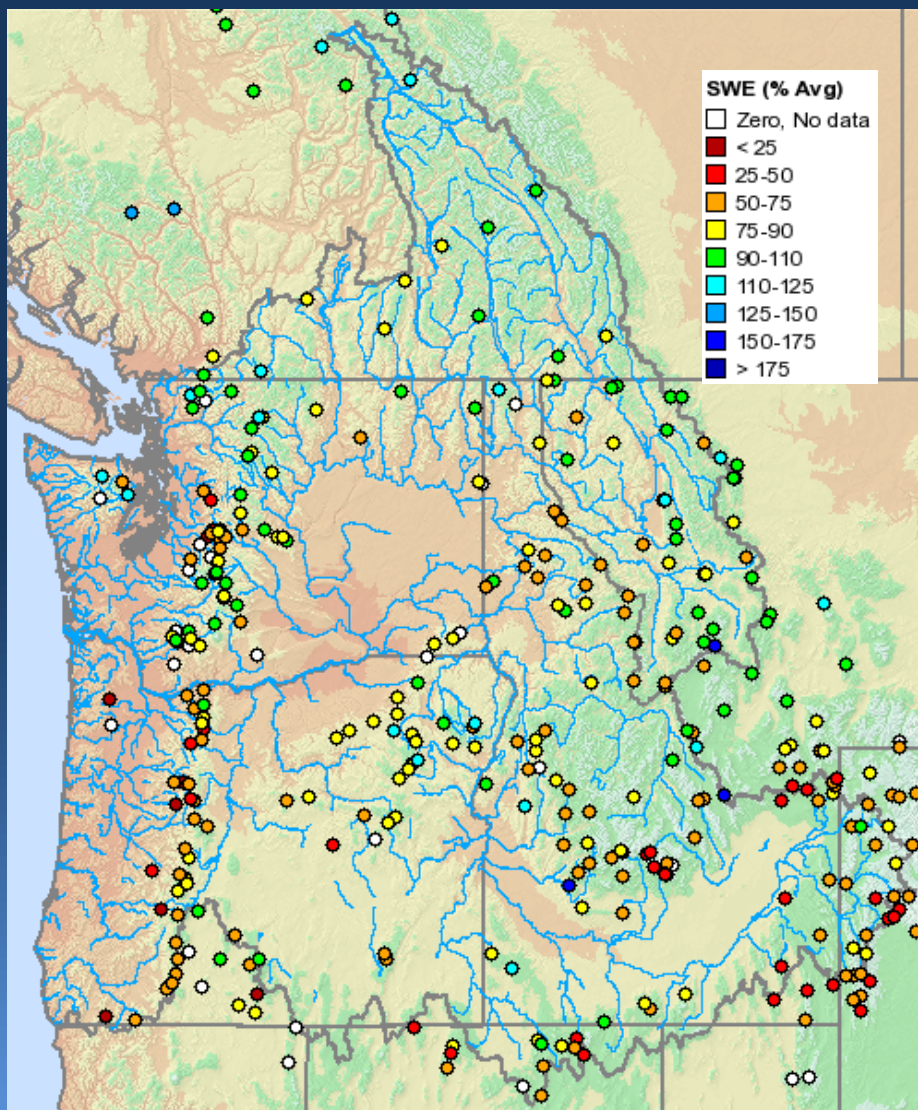




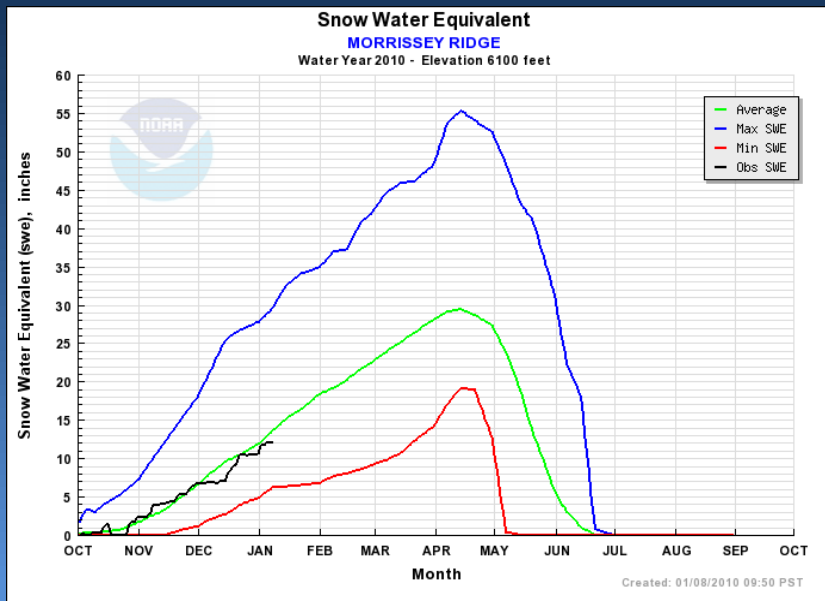
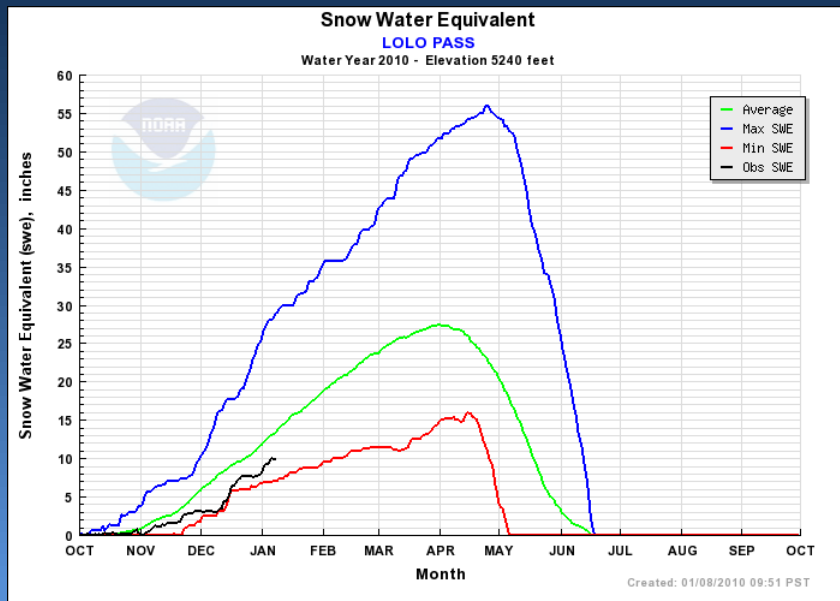
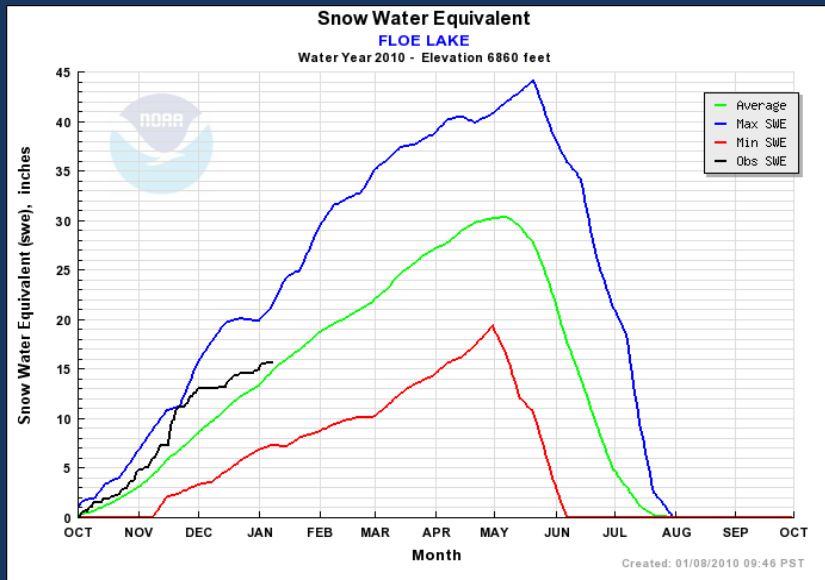
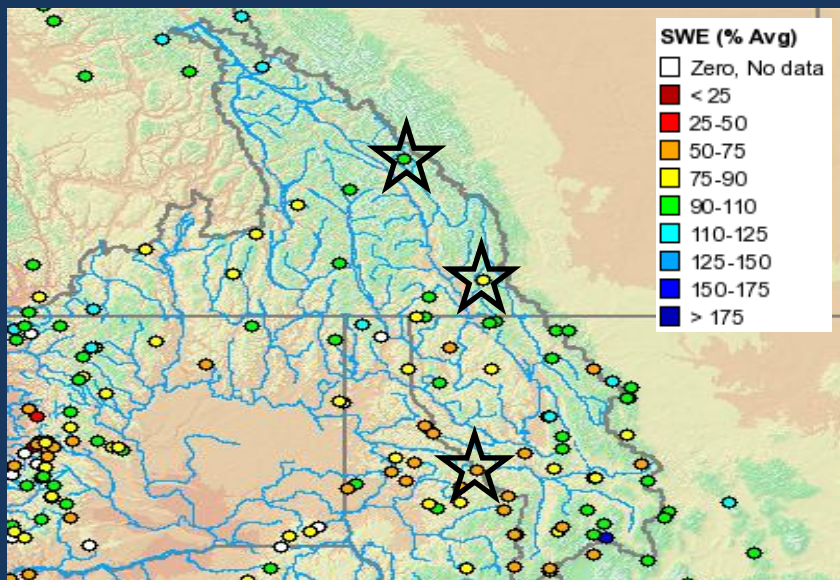
Current Snow Conditions



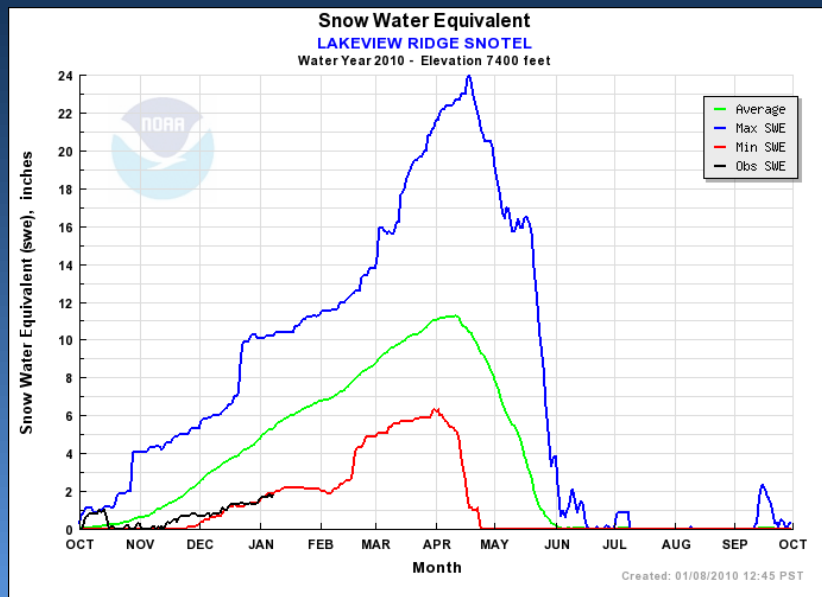
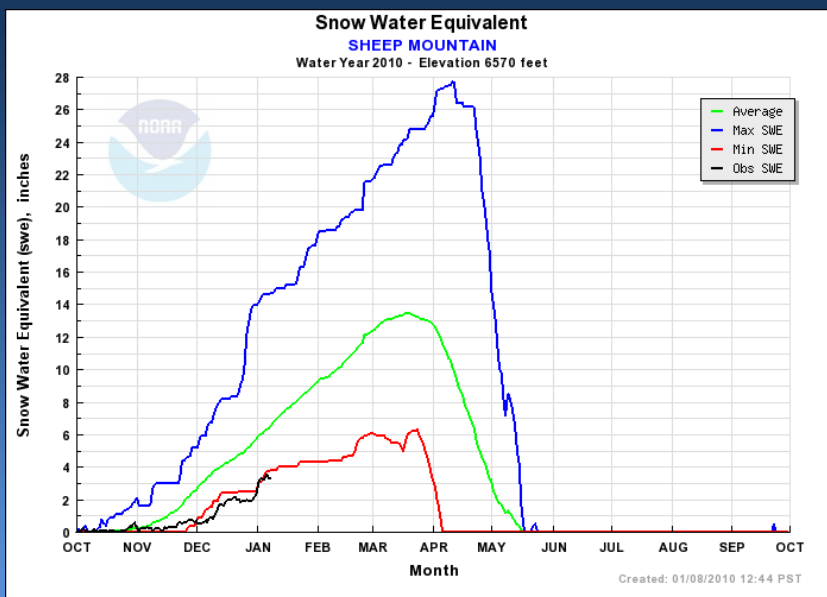
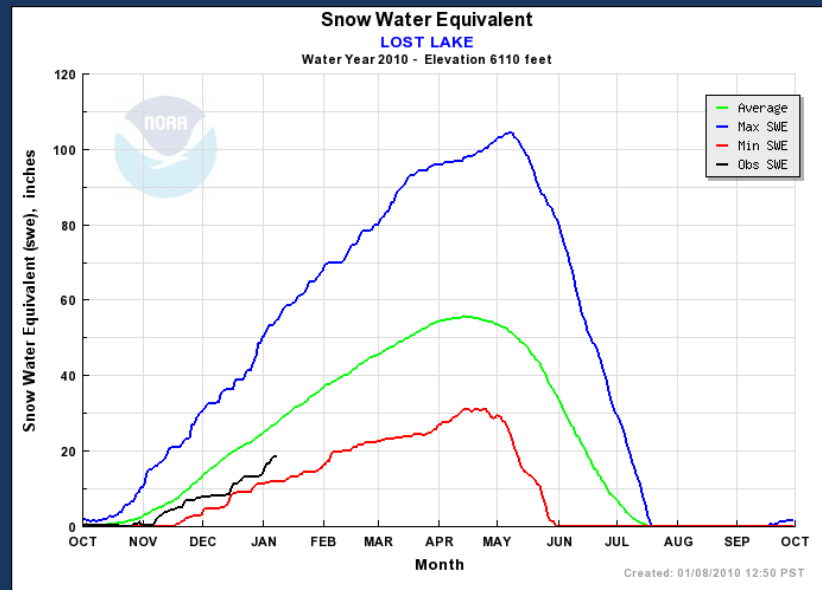
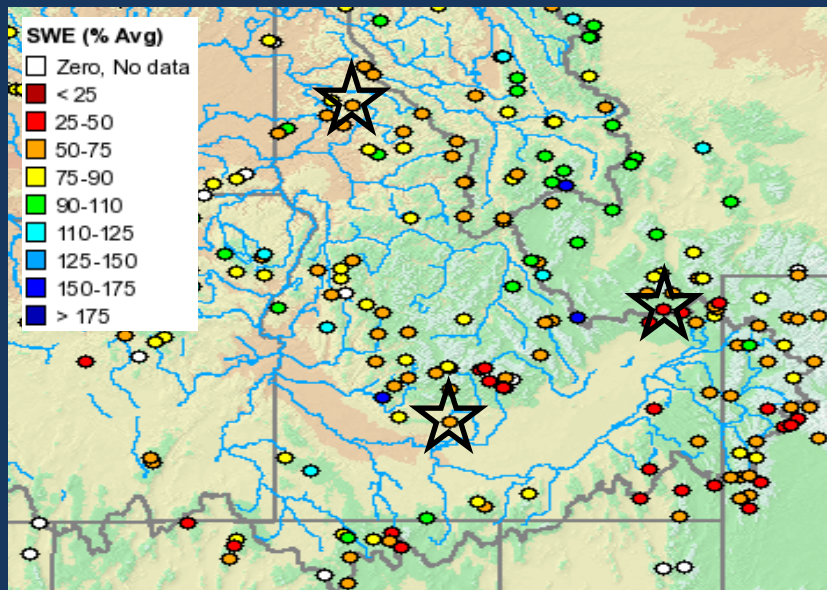
Jan 8, 2010



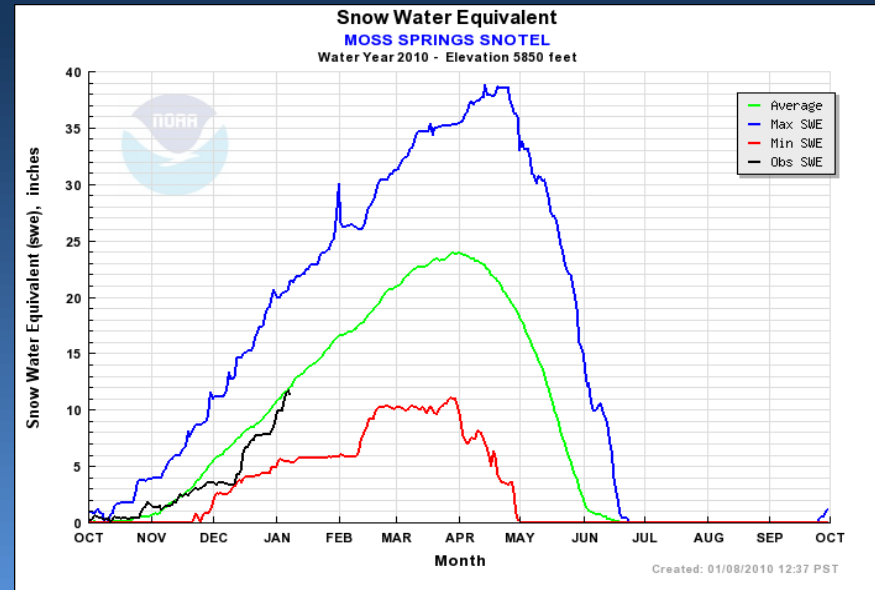
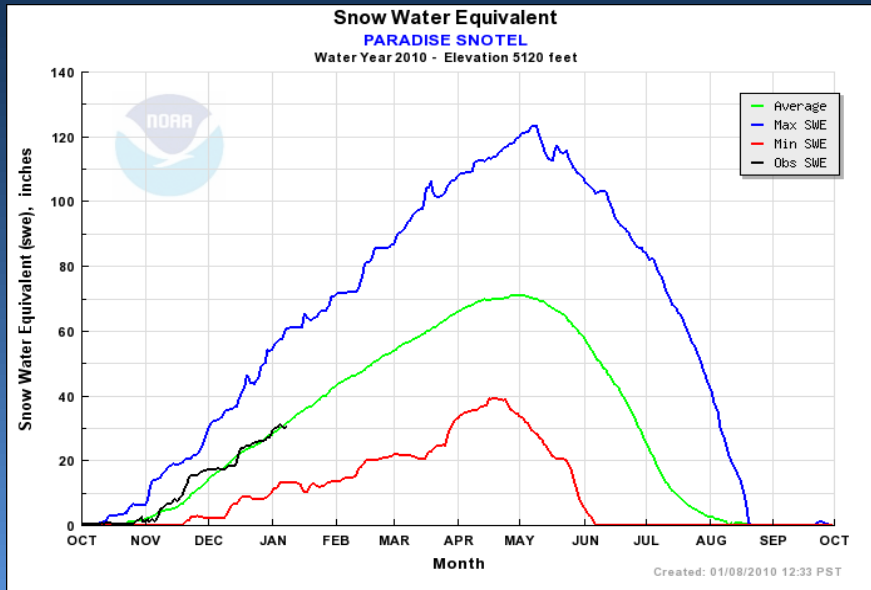
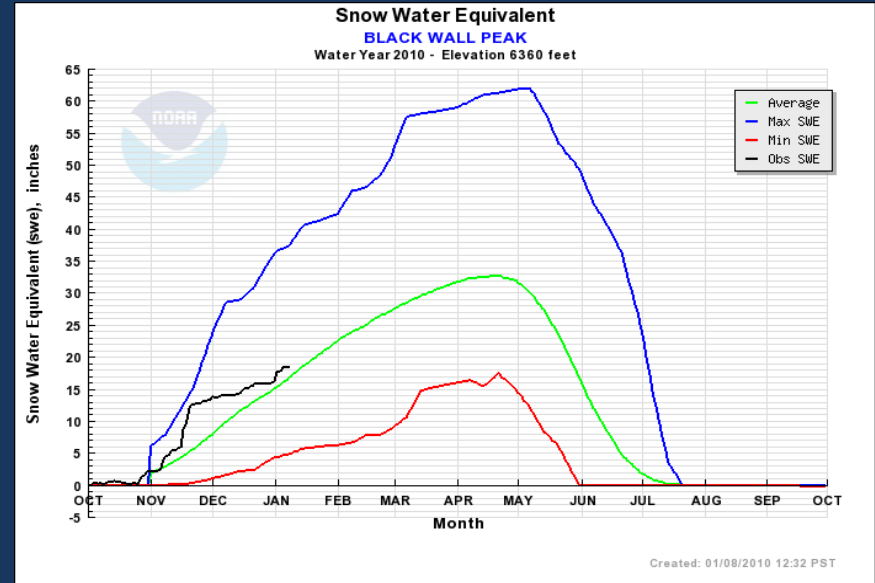
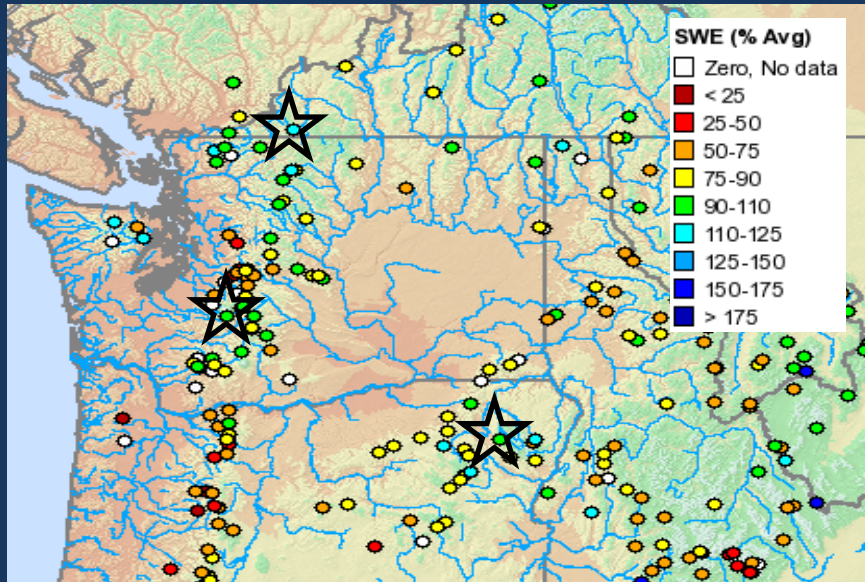
Upper Columbia Snow Conditions

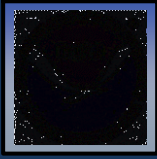


Snake River Snow Conditions



Lower Columbia Snow Conditions





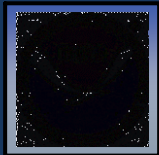
Future Conditions



Climate Outlooks

Short Term Precipitation Forecast

Water Supply Forecasts



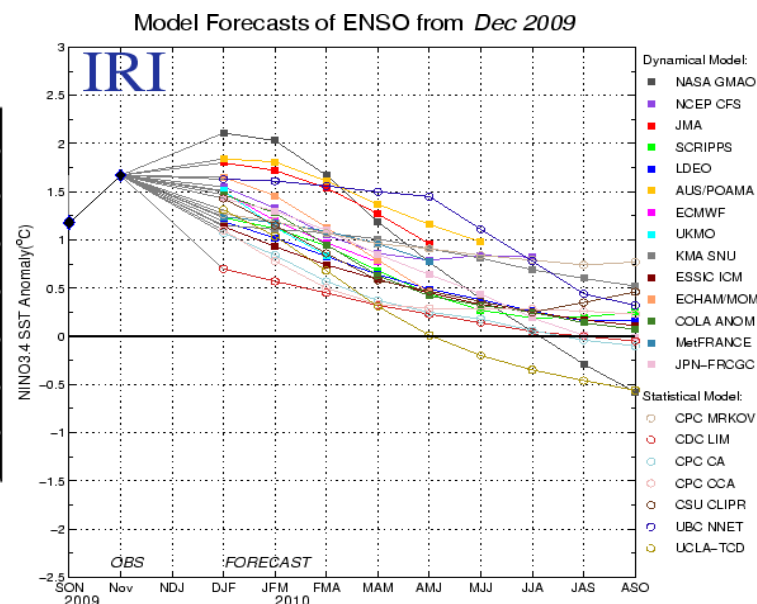
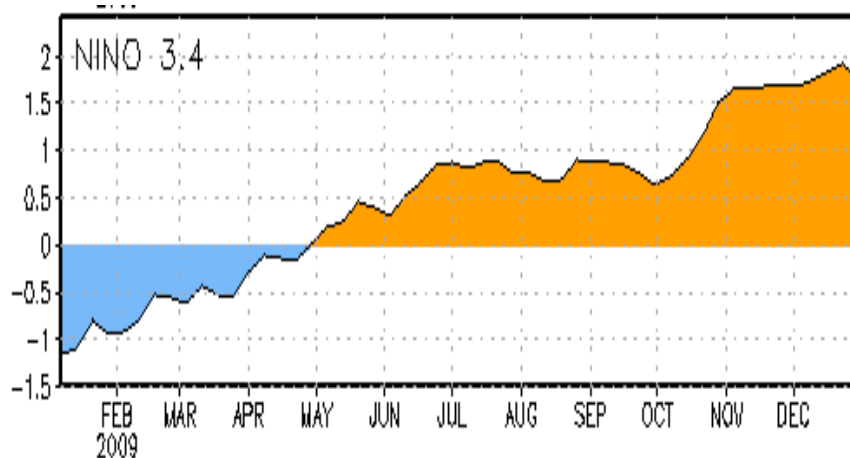
Enso: Observed and Forecast

SST Anomaly (Deg C)



Observed

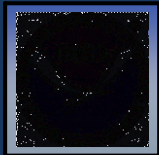
Forecast



CPC Synopsis: El Niño is expected to continue at least into spring of 2010

Source: El Niño/Southern Oscillation (ENSO) Diagnostic Discussion, Jan 7, 2010

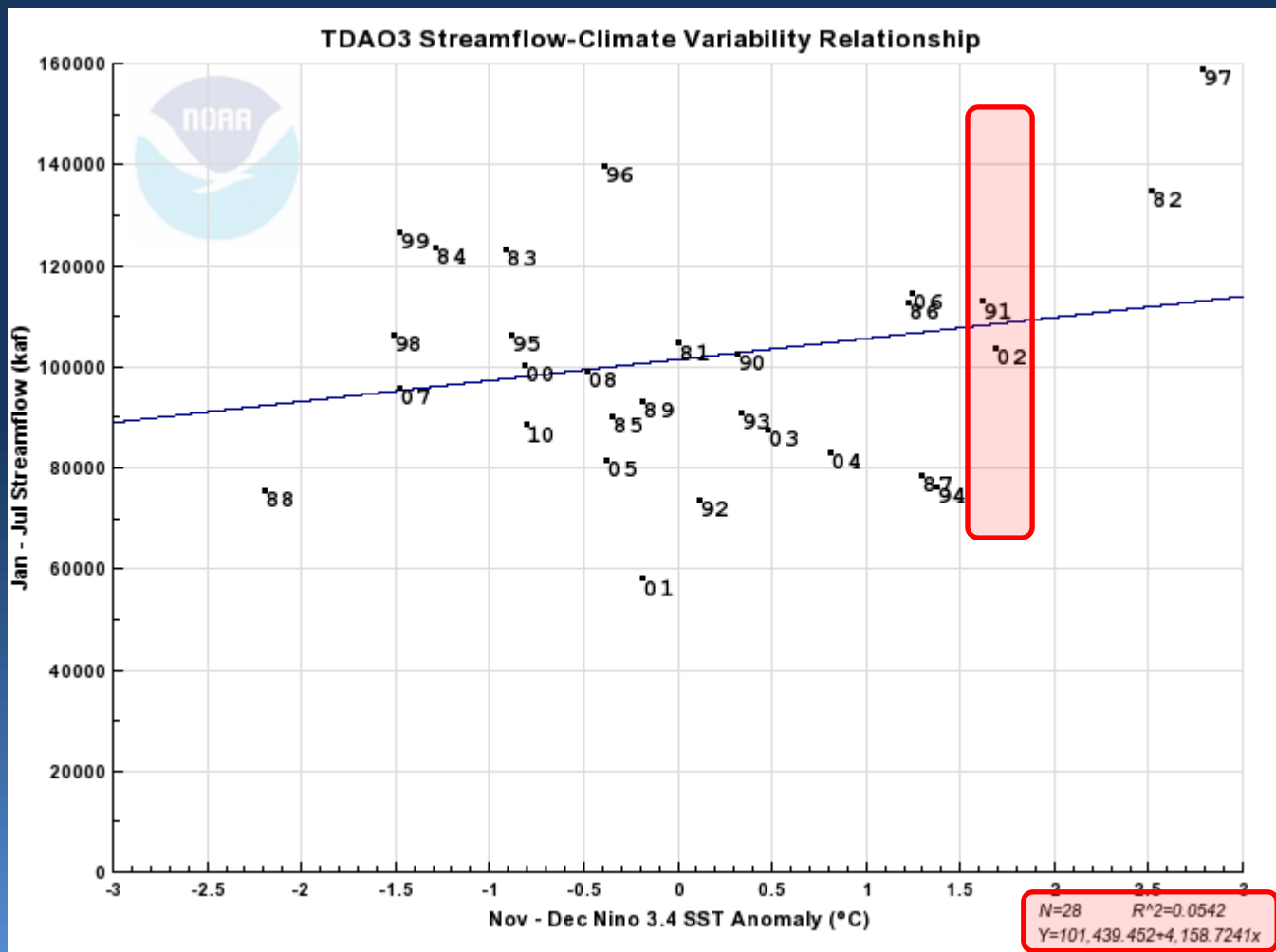
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/index.shtml

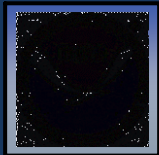


SST Anomaly vs Streamflow

The Columbia River at The Dalles

Nov-Dec SST vs Jan-Jul Runoff

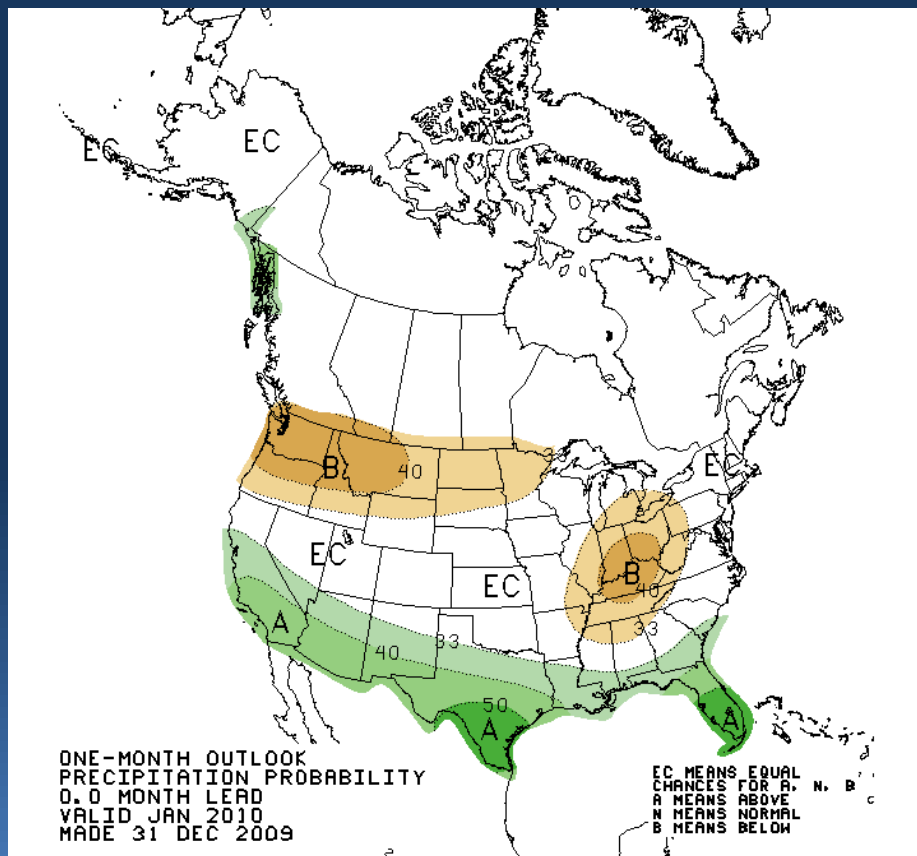




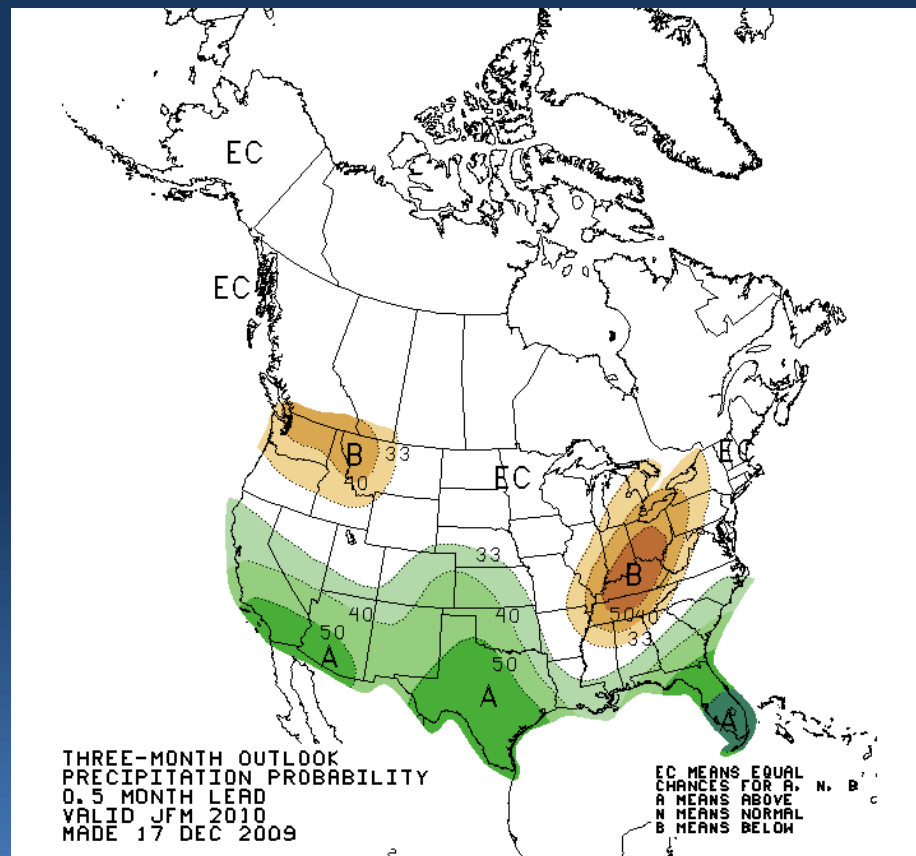
Climate Outlook: Precipitation

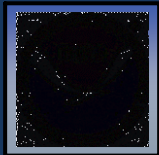


Current Month Outlook



Three Month Outlook

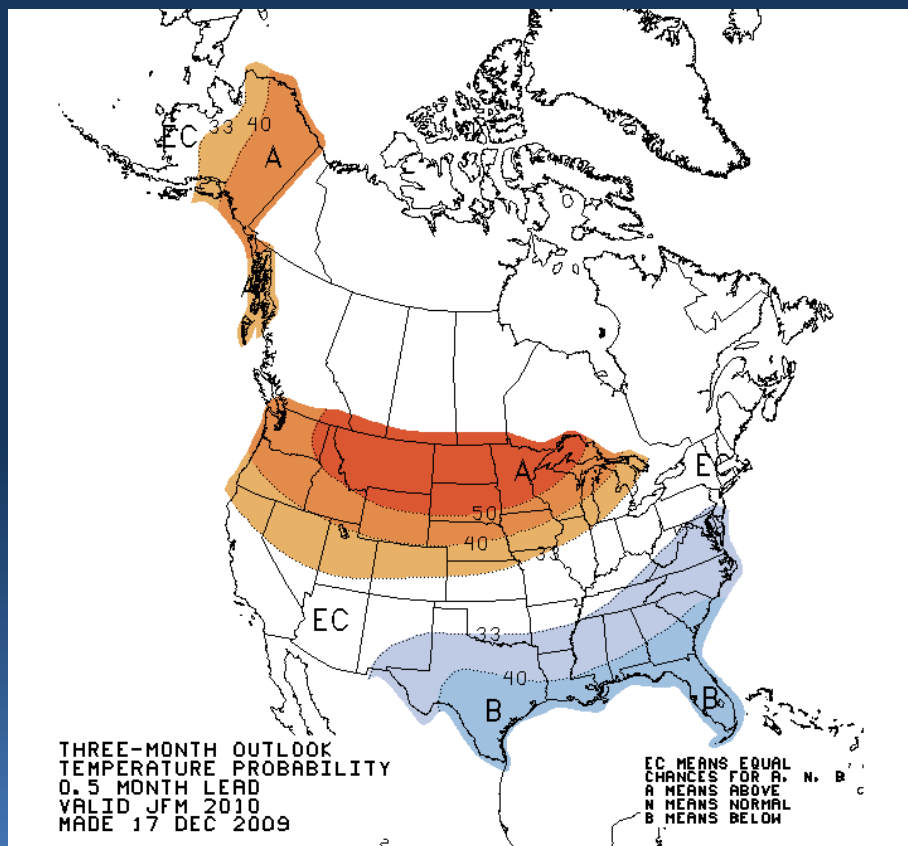




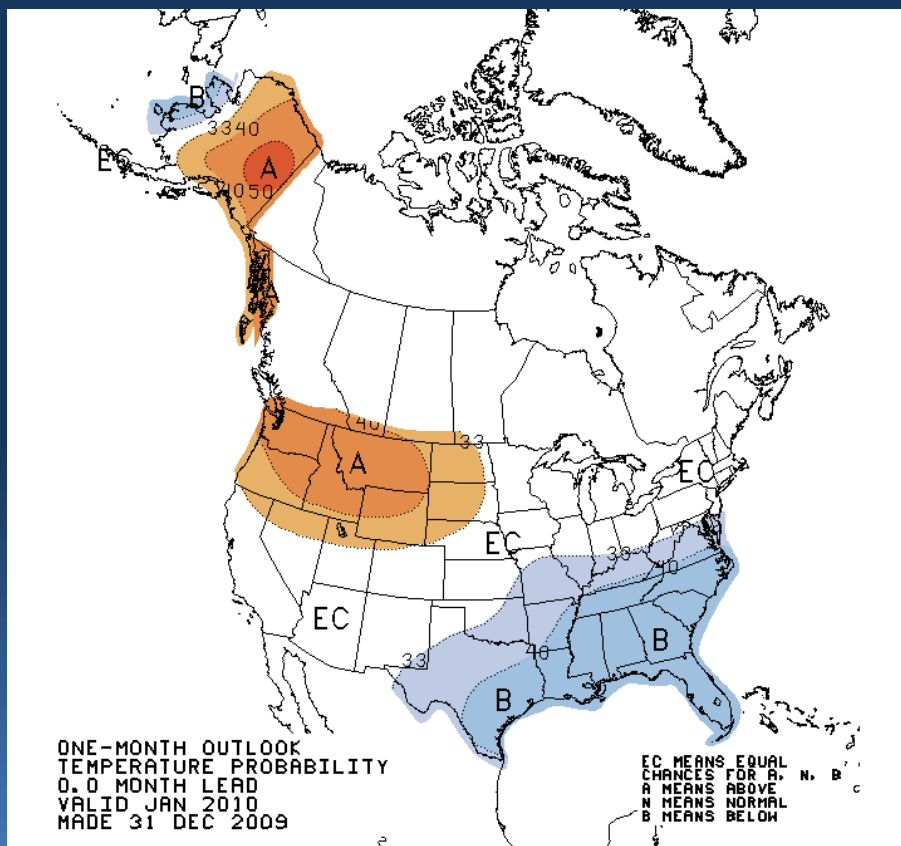
Climate Outlook: Temperature



Current Month Outlook



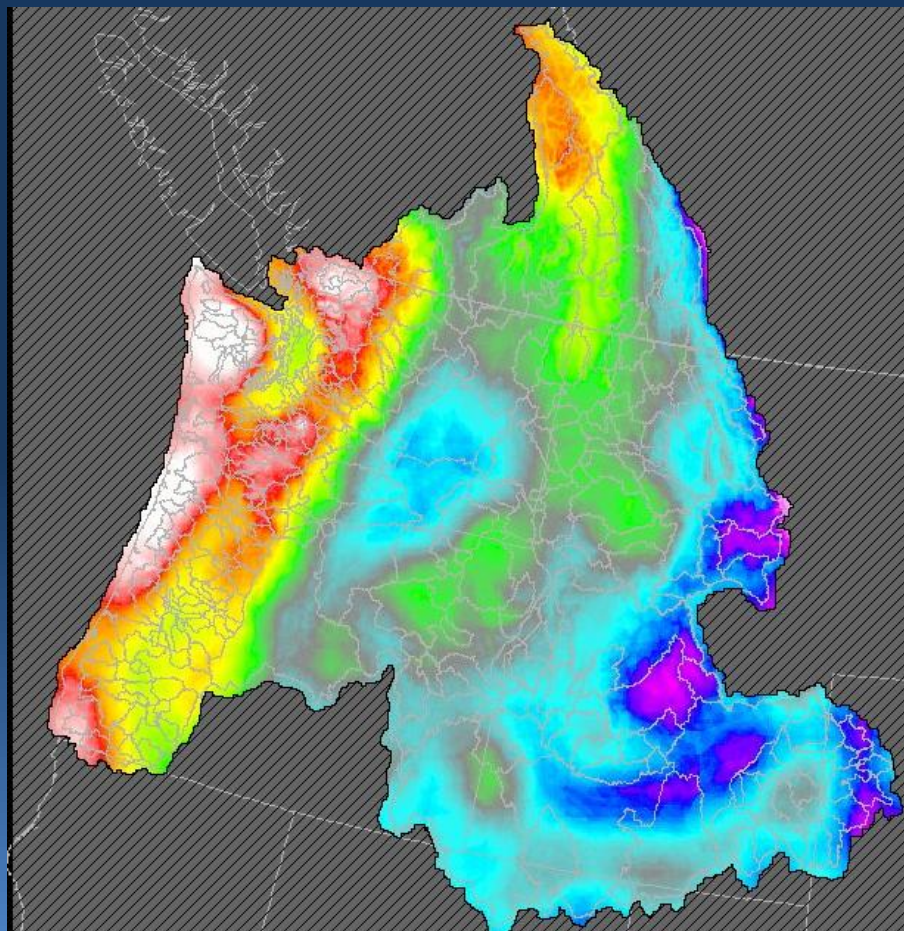
Three Month Outlook



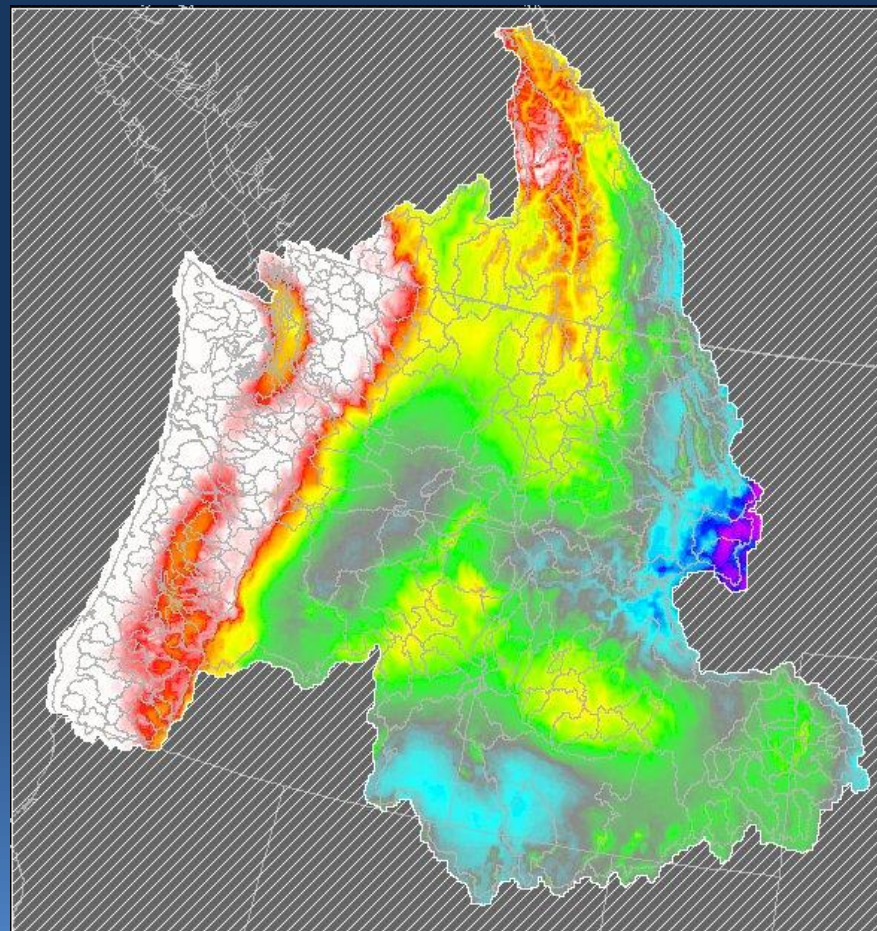
10 Day Precipitation Forecast Sum



Jan 7-17, 2010



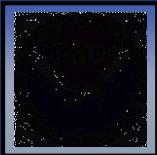
Jan 11-21, 2010



(Inches)

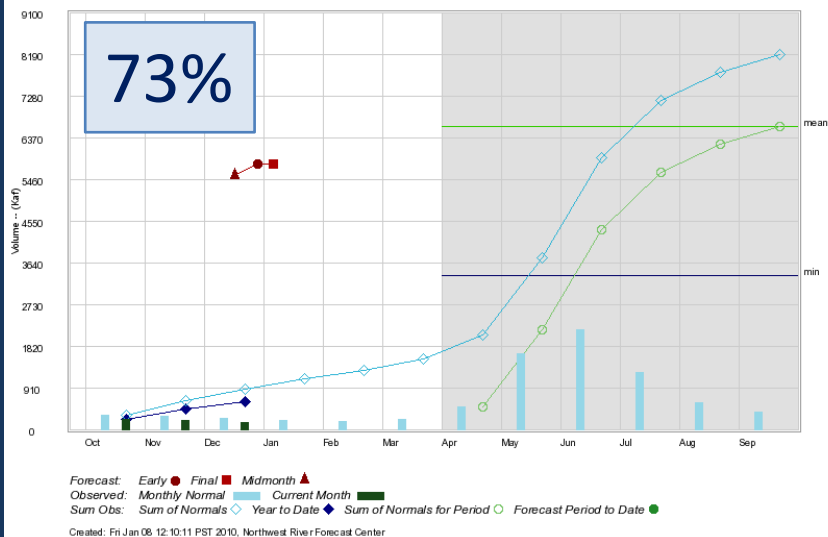


Water Supply Forecast: Upper Columbia



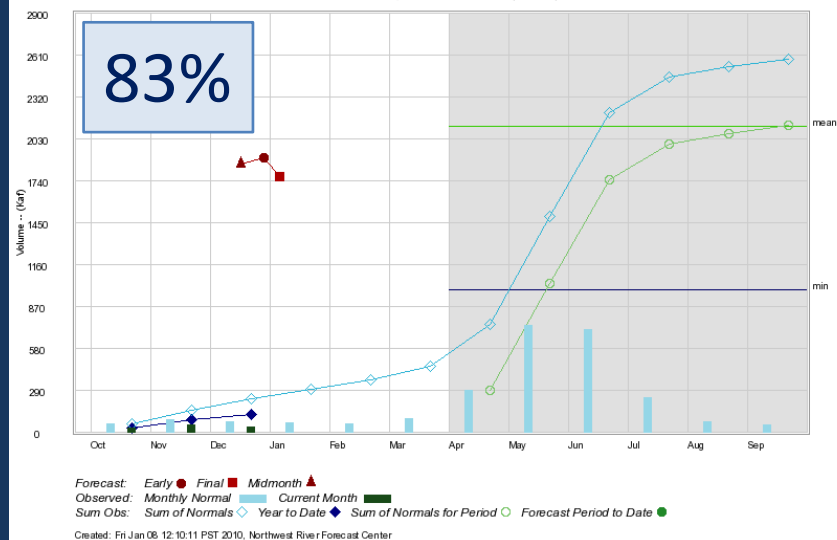
LIBBY RES INFLOW, MT (1) (LYDM8)

Water Year 2010, Forecast Period Apr -- Sep



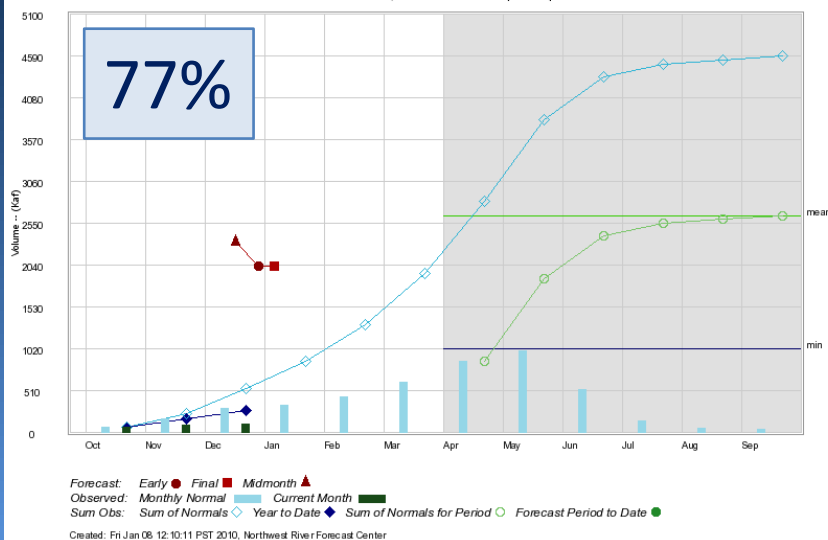
HUNGRY HORSE RES IN, MT (1) (HHWM8)

Water Year 2010, Forecast Period Apr -- Sep



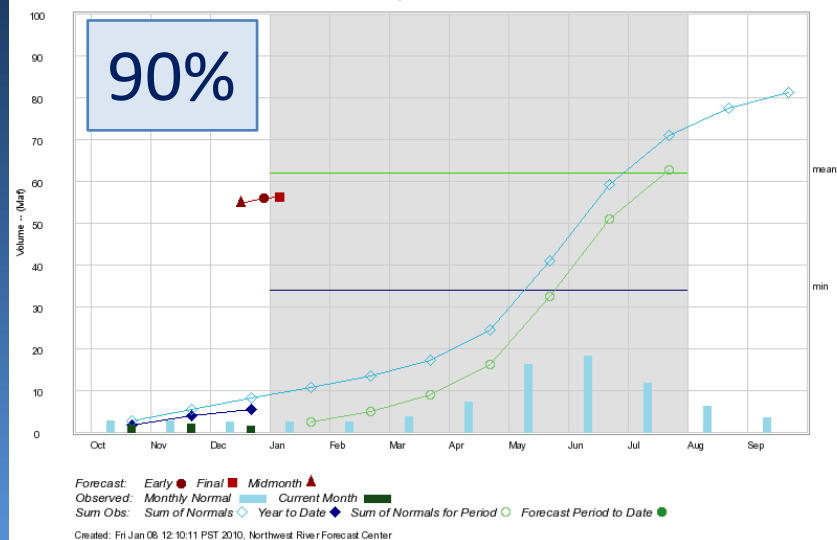
COEUR D'ALENE LAKE IN, ID (COE11)

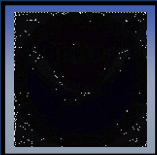
Water Year 2010, Forecast Period Apr -- Sep



GRAND COULEE, WA (1) (GCDW1)

Water Year 2010, Forecast Period Jan -- Jul



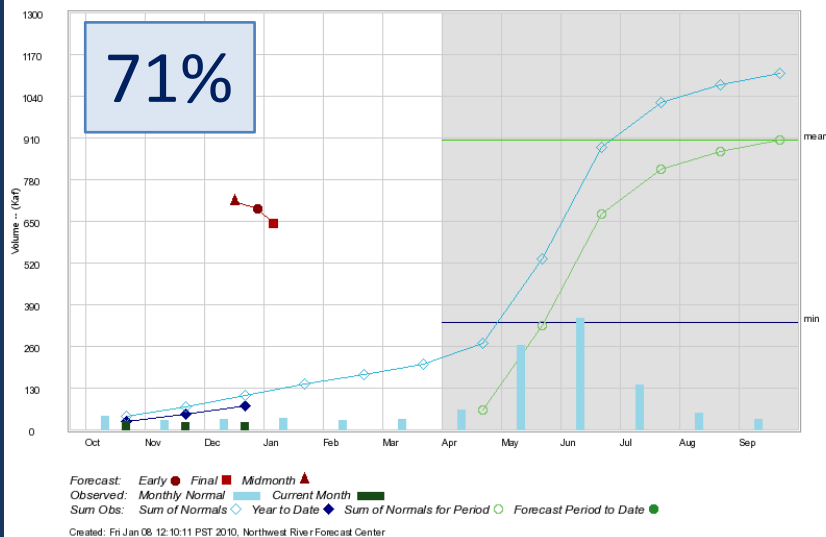


Water Supply Forecast: Snake



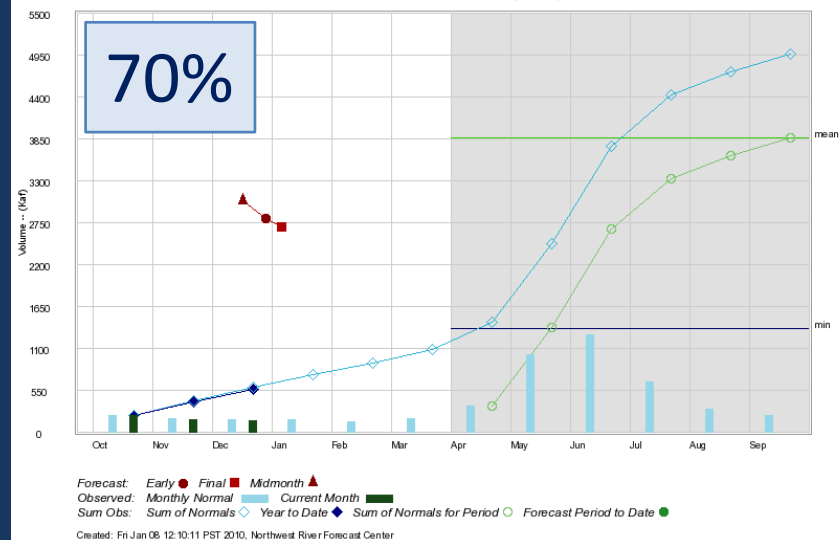
JACKSON LAKE INFLOW, WY (1) (JLKW4)

Water Year 2010, Forecast Period Apr -- Sep



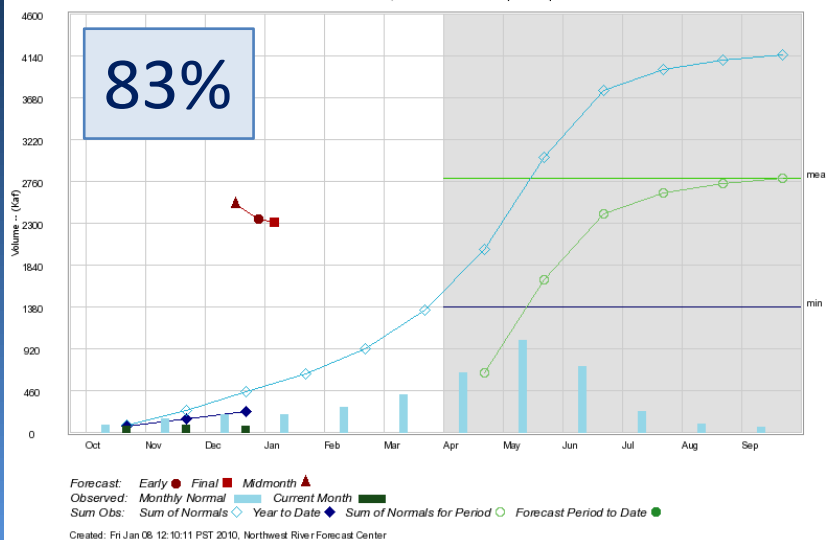
PALISADES RES INFLOW, ID (1) (PAL11)

Water Year 2010, Forecast Period Apr -- Sep



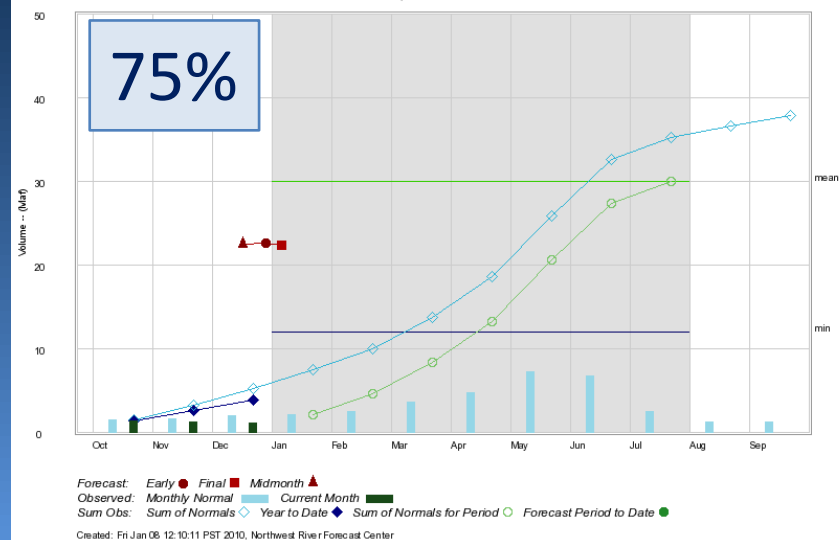
DWORSHAK RES INFLOW, ID (1) (DWR11)

Water Year 2010, Forecast Period Apr -- Sep



LOWER GRANITE RES IN, WA (1) (LGDW1)

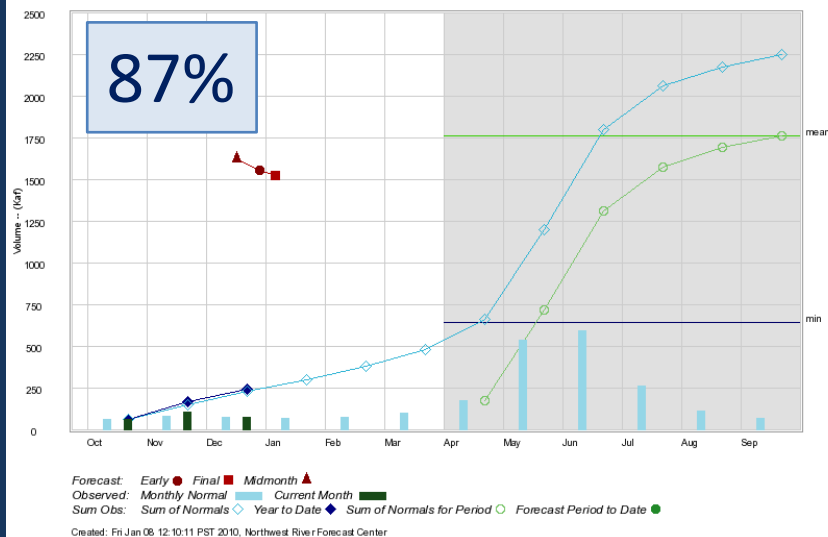
Water Year 2010, Forecast Period Jan -- Jul



Water Supply Forecast: Lower Columbia

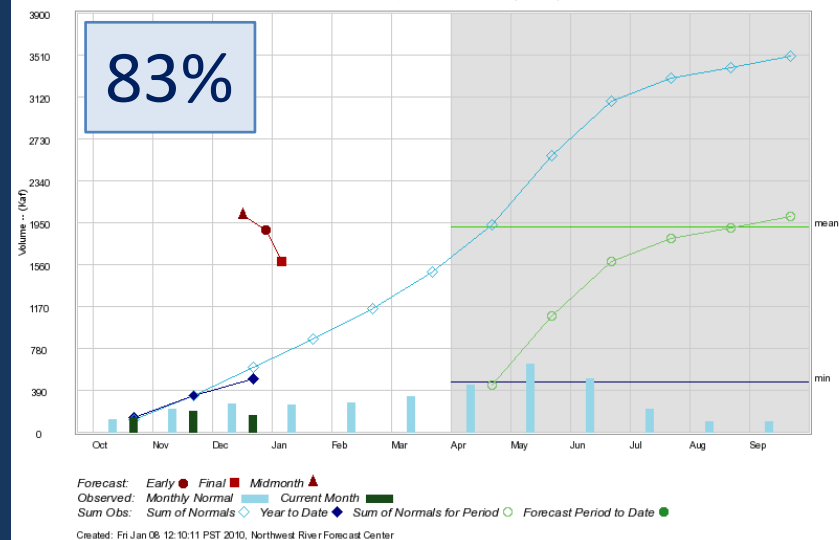
TONASKET NR, WA (1) (TONW1)

Water Year 2010, Forecast Period Apr -- Sep



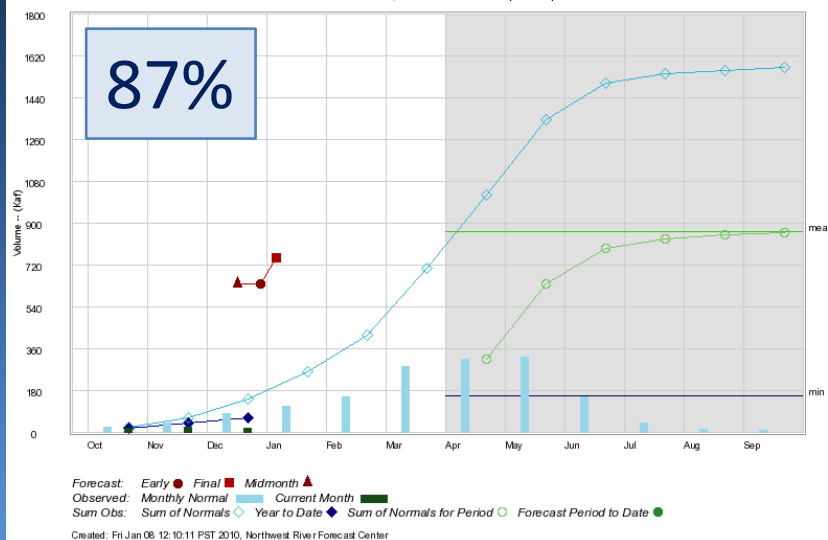
PARKER NR, WA (PARW1)

Water Year 2010, Forecast Period Apr -- Sep



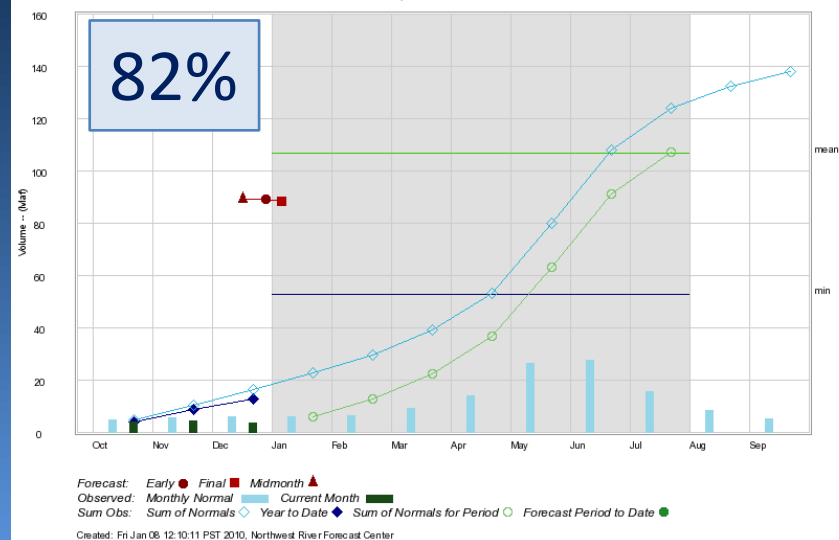
SERVICE CREEK, OR (1) (SER03)

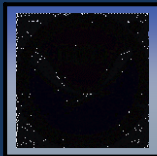
Water Year 2010, Forecast Period Apr -- Sep



THE DALLES NR, OR (1) (TDA03)

Water Year 2010, Forecast Period Jan -- Jul





Water Supply Forecast Summary

Compared to Historical Observed 1961-2009 (49 years)

Grand Coulee

Year	Jan-Jul Vol (MAF)	Rank	Exceedance Prob
2008	59.65	29	56.863 %
1980	59.33	30	58.824 %
1995	59.04	31	60.784 %
1998	58.94	32	62.745 %
1963	57.55	33	64.706 %
2010	56.30	34	66.667 %
2005	54.39	35	68.627 %
1989	54.33	36	70.588 %
1970	54.20	37	72.549 %
2003	54.18	38	74.510 %
1985	52.03	39	76.471 %

Lower Granite

Year	Jan-Jul Vol (MAF)	Rank	Exceedance Prob
1979	24.08	30	61.224 %
2002	23.98	31	63.265 %
2003	23.81	32	65.306 %
1961	23.48	33	67.347 %
1968	22.75	34	69.388 %
2010	22.40	35	71.429 %
1990	20.70	36	73.469 %
2004	20.68	37	75.510 %
1991	20.12	38	77.551 %
1966	19.66	39	79.592 %
2007	18.89	40	81.633 %

The Dalles

Year	Jan-Jul Vol (MAF)	Rank	Exceedance Prob
1989	93.02	34	66.667 %
1993	90.82	35	68.627 %
1985	90.33	36	70.588 %
2009	90.24	37	72.549 %
1966	89.73	38	74.510 %
2010	88.50	39	76.471 %
2003	87.69	40	78.431 %
1979	83.03	41	80.392 %
2004	82.96	42	82.353 %
2005	81.35	43	84.314 %
1987	78.64	44	86.275 %

Water Supply Forecast: ESP Comparison



COLUMBIA - GRAND COULEE DAM (GCDW1)

Forecasts for WY 2010

Official Forecast (Regression) <i>Issued: 2009-12-31</i>								(Description)	ESP Forecasts <i>Issued: 2010-01-05</i>					
Period	Forecast (KAF)	% of Average	5% Forecast	95% Forecast	30yr (1971-2000) Average	Max of Record	Min of Record	Forecast Period	ESP Forecasts for Forecast Period (KAF)					Obs Flow From Start of Period To 1/4/2010
									90 % Exceedance Probability	70 % Exceedance Probability	50 % Exceedance Probability	30 % Exceedance Probability	10 % Exceedance Probability	
JAN-SEP	65200.0	89	83355.0	47045.0	73040.0	103500.0	44000.0	JAN-SEP	52032.0	55428.3	57791.4	62586.4	68212.2	0.0
APR-JUL	48100.0	89	66255.0	29945.0	53850.0	76239.0	31885.0	APR-JUL	38498.5	41229.3	42997.3	ESP Update 1/8/10	0.5	0.0
APR-SEP	57100.0	89	75255.0	38945.0	63990.0	88512.0	39829.0	APR-SEP	46393.5	49188.7	51581.0		7.6	0.0
JAN-JUL	56100.0	89	74255.0	37945.0	62900.0	91140.0	34760.0	JAN-JUL	44259.3	47383.1	49249.1		7.1	0.0

ESP Update
1/8/10
JJ =53.3

SNAKE - LOWER GRANITE DAM (LGDW1)

Forecasts for WY 2010

Official	Forecast	Forecast (Regression) <i>Issued: 2009-12-31</i>						ESP Forecasts <i>Issued: 2010-01-05</i>							
Period	Forecast (KAF)	% of Average	5% Forecast	95% Forecast	30yr (1971-2000) Average	Max of Record	Min of Record	Forecast Period	ESP Forecasts for Forecast Period (KAF)			Obs Flow From Start of Period To 1/4/2010			
									90 % Exceedance Probability	70 % Exceedance Probability	50 % Exceedance Probability	30 % Exceedance Probability	10 % Exceedance Probability		
JAN-SEP	24700.0	76	35572.0	13828.0	32610.0	53055.0	14754.0	JAN-SEP	21584.5	26303.7	27924.0	31003.6	34642.1	0.0	
APR-JUL	16300.0	76	27172.0	5428.0	21550.0	33528.0	8634.0	APR-JUL	13313.5	17439.1	18447.2	ESP Update 1/8/10	0.3	0.0	
APR-SEP	18300.0	76	29172.0	7428.0	24140.0	37104.0	10420.0	APR-SEP	15786.0	20141.3	21421.9		0.1	0.0	
JAN-JUL	22700.0	76	33572.0	11828.0	30020.0	49478.0	12878.0	JAN-JUL	19121.5	23509.3	24994.9		0.1	0.0	

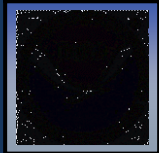
ESP Update
1/8/10
JJ =24.5

COLUMBIA - THE DALLES DAM (TDAO3)

Forecasts for WY 2010

Official	Forecast	(Regression) <i>Issued: 2009-12-31</i>						(Description)						ESP Forecasts <i>Issued: 2010-01-05</i>													
Period	Forecast (KAF)	% of Average	5% Forecast	95% Forecast	30yr (1971-2000) Average	Max of Record	Min of Record		Forecast Period	ESP Forecasts for Forecast Period (KAF)						Obs Flow From Start of Period To 1/4/2010											
										90 % Exceedance Probability	70 % Exceedance Probability	50 % Exceedance Probability	30 % Exceedance Probability	10 % Exceedance Probability													
JAN-SEP	101000.0	83	130763.0	71237.0	121300.0	176593.0	64517.0		JAN-SEP	86964.0	94050.3	101537.2	105913.2	117017.3	0.0												
APR-AUG	77500.0	83	107263.0	47737.0	93090.0	133733.0	49445.0		APR-AUG	65808.4	73495.6	78581.0		7.4	0.0												
JAN-AUG	96400.0	83	126163.0	66637.0	115700.0	168669.0	59871.0		JAN-AUG	82535.0	88556.7	95651.3	ESP Update 1/8/10	30.4	0.0												
APR-SEP	82100.0	83	111863.0	52337.0	98650.0	141056.0	54091.0		APR-SEP	71332.8	78891.6	83657.8		4.3	0.0												
JAN-JUL	89300.0	83	119063.0	59537.0	107300.0	159000.0	53359.0		JAN-JUL	75912.5	81641.6	88156.8		23.8	0.0												


ESP Update
1/8/10
JJ =90.8



NWRFC Water Supply Webpage

www.nwrfc.noaa.gov





National Weather Service Northwest River Forecast Center

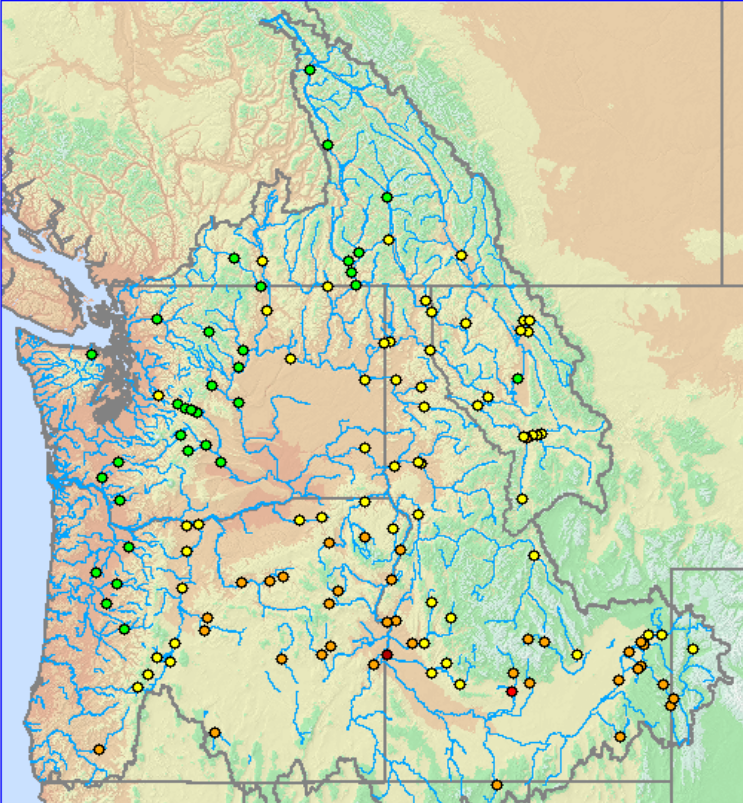
[Home](#)[Site Map](#)[News](#)[Organization](#)

Water Supply Forecast (Issued 12-31-2009)

Map data updated 12/31.20:17 GMT, 12/31.12:17 PST.

The next LIVE Water Supply Briefing will be held January 11, 2010 -- [click here for more information](#)

Place cursor over point for Station Info, click point for data plot.
Select Zoom Option to zoom in on map
Click to: [Select](#) [Zoom](#) Zoom to: 1x 4x 8x



Legend

Water Supply Forecast (% Avg)

- No Average, No data
- < 25
- 25-50
- 50-75
- 75-90
- 90-110
- 110-125
- 125-150
- 150-175
- > 175

Point Info/Search

Station Name

ID

Forecast Period

Volume Forecast (KAF)

% of Avg (1971-2000)

5% Forecast (KAF)

95% Forecast (KAF)

30-YR Avg (KAF)

Water Supply Forecast Information

- Summary
- Western Water Supply

ESP Water Supply

- ESP Natural
- ESP Interactive

Peakflow

- Description
- Verification

Inputs

- Precipitation
- Temperature
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